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botany. The section on human physiology attempts to cover all the important topics, and meets the demands of certain state laws by indicating the effects of alcohol. The absurd extent to which this may be carried is shown in the chapter on "The nervous system," in which ten pages are given to alcoholism and eight to the entire nervous system.—OTIS W. CALDWELL.

Wettstein's *Handbuch* ³

A third instalment of WETTSTEIN'S *Handbuch* contains a general discussion of the angiosperms and a special taxonomic treatment of the choripetalous dicotyls. The next and final instalment, which is promised in the spring of 1908, will deal with the rest of the dicotyls and with the monocotyls. After a presentation of the general morphology of angiosperms, the writer discusses their phylogeny. He believes that the monocotyls have been derived from the dicotyls, and that among the dicotyls the Monochlamydeae contain the most primitive forms. Consequently, they would be most likely to show characters which might indicate relationship with groups below. The pollen-tube structures and the flowers of angiosperms are thought to indicate a gymnosperm origin. It is not claimed that the flowers of living gymnosperms and angiosperms furnish an easy transition, but merely that the types can be reconciled both morphologically and ecologically. The Choripetalae are arranged in thirteen series, beginning with the Verticillatae, Casuarinaceae being the lowest family, and ending with the Centrospermae, in which the Caryophyllaceae are the highest family. The Dialypetalae contain twelve series, beginning with the Polycarpicae, Magnoliaceae being the lowest family, and ending with the Umbelliflorae. The description of families is full and clear and profusely illustrated with excellent figures, many of which are new.—

CHARLES J. CHAMBERLAIN.

MINOR NOTICES

Das Pflanzenreich.⁴—Part 30 contains the Styracaceae, prepared by JANET PERKINS. After the usual introductory account of the characters and geographical distribution of the family, the six genera are presented as follows: Pamphilia (3 spp., 1 new), Styra^x (97 spp., 11 new), Bruinsmia (2 spp.), Alniphyllum (3 spp.), Halesia (3 spp.), and Pterostyra^x (3 spp., 1 new).

Part 31 contains the Potamogetonaceae by ASCHERSON and GRAEBNER, prefaced by an unusually full account of the structure and habits of this interesting family. The systematic presentation is as follows: Zostereae containing Zostera

³ WETTSTEIN, DR. RICHARD R. v., *Handbuch der systematischen Botanik*. II Band. 2 Theil (erste Hälfte). pp. 161-394. *figs.* 165 (995). Leipzig und Wien: Franz Deuticke. 1907. *M* 9.

⁴ ENGLER, A., *Das Pflanzenreich*. Heft 30. Styracaceae von J. PERKINS. pp. 111. *figs.* 18 (191). *M* 5.60. Heft 31. Potamogetonaceae von P. ASCHERSON und P. GRAEBNER. pp. 184. *figs.* 36 (221). *M* 9.20. Leipzig: Wilhelm Engelmann. 1907.

(6 spp.) and Phyllospadix (3 spp.); Posidonieae containing Posidonia (2 spp.); Potamogetoneae containing Potamogeton (89 spp., 1 new, and numerous hybrids) and Ruppia (1 sp.); Cymodoceae containing Cymodocea (7 spp.) and Diplanthera (2 spp.); and Zannichellieae containing Zannichellia (2 spp., 1 new) and Althenia (4 spp.).—J. M. C.

Giesenhausen's Lehrbuch.—The fourth edition of GIESENHAGEN'S *Textbook of botany*⁵ is not essentially different from the third edition, which was reviewed in this journal.⁶ A few details have been modified, a few figures added, and the text in general brought up to date. The most noticeable change is the presentation of current theories, which many botanists believe to be out of place in a textbook. The author, however, believes that important theories and problems, even though still lacking definite proof, are valuable if the presentation makes it clear that they are only theories.—CHARLES J. CHAMBERLAIN.

Plants of Bolivia.—The fourth part of the enumeration of Bolivian plants collected by MIGUEL BANG has been issued as a Bulletin of the New York Botanical Garden.⁷ The previous parts appeared in the *Memoirs of the Torrey Botanical Club* in 1893, 1895, and 1896. The present part completes the enumeration with the exception of Gramineae, and contains descriptions of 227 new species. Three new genera are also characterized: *Tournefortiopsis* and *Poederiopsis* (both Rubiaceae), and *Vassobia* (Solanaceae).—J. M. C.

Genera Siphonogamarum.—The eleventh fascicle of DALLA TORRE and HARMS'S⁸ list of the genera of seed-plants completes the work, the last entry being Zyzygium. There are included also title-page, preface, and list of families (290 in number).—J. M. C.

NOTES FOR STUDENTS

Morphology of bryophytes.—Several studies of bryophytes come to hand almost simultaneously. DACHNOWSKI⁹ has been working again upon the much-studied *Marchantia polymorpha*. The growth of the rhizoids, the origin of dorsiventrality, the plagiotropic position, the formation of reproductive organs, and fertilization have been reexamined. His conclusions are in part like those of previous investigators and in part a slight modification of them. He finds moisture the most

⁵ GIESENHAGEN, DR. K., Lehrbuch der Botanik. Fourth edition with 561 illustrations. 8vo. pp. xiv + 463. *figs.* 561. Stuttgart: Fr. Grub. 1907

⁶ BOT. GAZETTE 37:225. 1904.

⁷ RUSBY, HENRY H., An enumeration of the plants collected in Bolivia by MIGUEL BANG. Part 4. Bull. N. Y. Bot. Garden 4:309-479. 1907.

⁸ DALLA TORRE, C. G. DE, and HARMS, H., Genera Siphonogamarum ad systema Englerianum conscripta. Fasc. 11. pp. 801-921. Leipzig: Wilhelm Engelmann. 1907. M 6.50.

⁹ DACHNOWSKI, A., Zur Kenntnis der Entwicklungs-Physiologie von *Marchantia polymorpha*. Jahrb. Wiss. Bot. 44:254-286. *figs.* 4. *pl.* 4. 1907.